UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,381	02/26/2004	Florian O. Mertens	GP-304820	4785

60770 7590 01/04/2011

General Motors Corporation
c/o REISING ETHINGTON P.C.
P.O. BOX 4390
TROY, MI 48099-4390

EXAMINER	
WARTALOWICZ, PAUL A	

ART UNIT	PAPER NUMBER
1735	

MAIL DATE	DELIVERY MODE
01/04/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Continuation of 7. It appears that applicant has filed a claim set (12/15/10) identical to the claim set filed 8/6/10. Therefore, the claim set filed 12/15/10 is entered.

Continuation of 11. Does NOT place the application in condition for allowance because:

Applicant argues that the recitation in claim 1, line 15 of "the sole residue material in the hydrogen storage device" has support in the specification as originally filed. However, Applicant's arguments are drawn to establishing that the oxide is the only byproduct or residue. It appears that applicant is interpreting "residue" to be synonymous to "byproduct", and not imparting any structural limitations other than being a byproduct of the reaction. Therefore, it appears that the recitation "the sole residue material in the hydrogen storage device" has support in the specification as originally filed.

Applicant's argument with respect to the 35 USC 112, 1st paragraph rejection for the recitation of "preparing a mixture of particles....and placing the prepared mixture in a hydrogen storage device" is persuasive.

Applicant argues that the recitation of a "hydrogen storage device in proximity to the hydrogen consuming application" has support in the specification as originally filed. Applicant argues that the hydrogen storage device with its hydrogen storage material must be on the same vehicle as the fuel cell or other hydrogen consuming application in mobile applications. Applicant cites this recitation in the specification (denoting mobile applications) as support of the measurement of the hydrogen storage device in

"proximity" to the hydrogen consuming application. However, the length measurement encompassed by "proximity" is sufficiently broad that the portion of the specification cited by applicant does lend support to the entire breadth of "proximity".

Applicant argues that one cannot know whether the hydride is reacting with water or hydroxide or some other reaction product. However, it appears that the reaction mechanisms between the hydride and water and the hydride and hydroxide, respectively, are well known as taught by Machin. Additionally, it is unclear why the relative amounts of lithium hydride and lithium hydroxide would be difficult to control. Clarification is requested. Applicant argues that there would be certain advantages (ex. maximizing the use of volume of container) to providing hydride and hydroxide initially mixed, rather than mixing water and hydride first (as in the prior art). However, it appears that the advantages that applicant cites would flow naturally from the teaching of the prior art. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicant argues that neither Machin nor Long teaches or suggests preparing a mixture of a hydride and hydroxide particles for release of hydrogen on demand. However, it appears that one of ordinary skill would be able to produce hydrogen "on demand" according to the teachings of Machin of reaction conditions and mechanisms

for producing hydrogen from hydride and water and the hydride and hydroxide, respectively.

Applicant argues that neither Machin nor Long teaches or suggests preparing a mixture of hydride and hydroxide particles for release of hydrogen on demand and placing the mixture in a hydrogen storage device adapted for release of hydrogen from the device and delivery of the hydrogen to a hydrogen consuming application. However, Machin teaches a mixture of hydride and water, which partially react to form a mixture of lithium hydride and lithium hydroxide (pg. 2208). Long is relied upon to teach that it is known to take hydrogen produced from a hydrogen storage device (as described in Machin) and transport the hydrogen to a fuel cell. Additionally, it appears that the reaction between water and hydride would inherently generate heat to initiate the reaction between the lithium hydride and lithium hydroxide in the absence of a showing to the contrary. Additionally, it appears that any apparatus used in Machin would be a hydrogen storage device adapted for release of hydrogen as the claim does not require any particular structure of the apparatus.

Applicant argues that neither Machin nor Long teaches or suggests the preparation and storage of a mixture of hydride and hydroxide particles in proportions so that the total amount of hydride particles reacts substantially completely with the water and the particles of hydroxide to form hydrogen and a residue that is substantially only an oxide. However, it appears that it would have been obvious to one of ordinary skill in the art to provide the starting materials (hydride and water) in such proportions as to react to produce hydroxide and then to substantially completely react the

remaining hydride and hydroxide as explained in the Office Action mailed 10/27/10 at page 8 in the absence of unexpected results.

Applicant argues that the methods of Amendola are unrelated to any of the Machin disclosure, the Long disclosure, and the applicant's claimed method. However, it appears that the Amendola reference is relevant to Machin in that both the Machin reference and the Amendola reference are drawn to producing hydrogen from metal hydrides.

/Paul Wartalowicz/

December 28, 2010

/Jessica L. Ward/

Supervisory Patent Examiner, Art Unit 1735